

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listing of claims:

Listing of Claims:

Claim 1 (currently amended): A method of cleansing a gas stream in a pollution control system, said gas stream having entrained large abrasive particles, comprising:

scrubbing the gas stream to remove a substantial proportion of the large abrasive particles by contacting spraying liquid droplets with in the size range of about 200 micrometers to about 750 micrometers mean mass diameter into said gas stream using a nozzle in a low-energy venturi scrubber, coalescing said droplets, and removing the coalesced droplets containing said large abrasive particles from the pollution control system; and

thereafter, scrubbing the gas stream to remove the remaining finer particles entrained in the gas stream,

wherein the pressure drop across said low-energy venturi scrubber is between about 1" of water to about 10" of water.

Claims 2 – 4 (canceled)

Claim 5 (currently amended): The method of claim 1, wherein more than about 90% of said large abrasive particles have having a aerodynamic diameter of greater than about 2 micrometers are removed by said low-energy venturi scrubber.

Claim 6 (canceled)

Claim 7 (currently amended): The method of claim 1 A method of cleansing a gas stream in a pollution control system, said gas stream having entrained particles, comprising:

scrubbing the gas stream to remove a substantial proportion of the large particles by contacting liquid droplets with said gas stream in a low-energy venturi scrubber, coalescing said droplets, and removing the coalesced droplets containing said large particles from the pollution

control system; and thereafter, scrubbing the gas stream to remove the remaining finer particles entrained in the gas stream,

wherein said second scrubbing step includes contacting said gas stream with a second scrubbing liquid, wherein said coalesced drops of said first scrubbing step are disposed of, and wherein said second scrubbing liquid is recycled in said air pollution control system.

Claim 8 (currently amended): The method of claim 1, wherein said first scrubbing step has a first pressure drop, wherein said second scrubbing step has a second pressure drop, and wherein said first pressure drop is less than about half of said second pressure drop.

Claim 9 (currently amended): A method of cleansing a gas stream in a pollution control system, said gas stream having entrained large abrasive particles, comprising:

scrubbing the gas stream to remove a substantial proportion of the large abrasive particles by contacting spraying liquid droplets having a mean mass diameter in the range of about 200 micrometers to about 750 micrometers into with said gas stream in a venturi scrubber, coalescing said droplets, and removing the coalesced droplets containing said large abrasive particles from the pollution control system, where said scrubbing occurs with a pressure drop; and

thereafter, scrubbing the gas stream in a second venturi scrubber to remove the remaining finer particles entrained in the gas stream, wherein said scrubbing occurs with a pressure drop; wherein the first scrubbing step is performed at a lower pressure drop than the second scrubbing step.

Claim 10 – 11 (canceled).

Claim 12 (original): The method of claim 9, wherein said pressure drop of said first scrubbing step is from about 1" H₂O to about 10" H₂O.

Claim 13 (currently amended): The method of claim 9, wherein more than about 90% of said large abrasive particles have having a aerodynamic diameter of greater than about 2 micrometers are removed by said low-energy venturi scrubber.

Claim 14 (canceled)

Claim 15 (currently amended): The method of claim 9, A method of cleansing a gas stream in a pollution control system, said gas stream having entrained particles, comprising:

scrubbing the gas stream to remove a substantial proportion of the large particles by contacting liquid droplets with said gas stream in a venturi scrubber, coalescing said droplets, and removing the coalesced droplets containing said large particles from the pollution control system, where said scrubbing occurs with a pressure drop; and

thereafter, scrubbing the gas stream in a venturi scrubber to remove the remaining finer particles entrained in the gas stream, wherein said scrubbing occurs with a pressure drop;

wherein the first scrubbing step is performed at a lower pressure drop than the second scrubbing step, and

wherein said second scrubbing step includes contacting said gas stream with a second scrubbing liquid, wherein said coalesced drops of said first scrubbing step are disposed of, and wherein said second scrubbing liquid is recycled in said air pollution control system.

Claim 16 (currently amended): A method of pre-treating a gas stream having entrained abrasive particles in a pollution control system, where said pre-treating removes a substantial proportion of entrained large abrasive particles from said gas stream prior to treating the gas stream to remove the remaining entrained finer particles, comprising:

scrubbing the gas stream in a low-energy venturi scrubber to remove a substantial proportion of the large abrasive particles by contacting spraying liquid droplets having a mean mass diameter in the range of about 200 micrometers to about 750 micrometers into with said gas stream, coalescing said droplets, and removing the coalesced droplets containing said particles from the pollution control system.

Claim 17 (canceled)

Claim 18 (currently amended): The method of claim 16, wherein said sprayed liquid droplets comprise are water and have a mean mass diameter of from about 200 300 micrometers to about 750 700 micrometers.

Claim 19 (original): The method of claim 16, wherein said pressure drop of said scrubbing step is from about 1" H₂O to about 10" H₂O.

Claim 20 (currently amended): The method of claim 16, wherein more than about 90% of said large particles have having a aerodynamic diameter of greater than about 2 micrometers are removed by said low-energy venturi scrubber.

Claim 21 (canceled)

Claim 22 (currently amended): The method of claim 19 [[17]], wherein said coalesced drops are disposed of.

~~wherein the scrubbing step is performed at a substantially lower pressure drop than the treating step.~~

Claim 23 (currently amended): An air pollution control system for removing entrained particles from a gas stream comprising: a first scrubber to removes a substantial proportion of particles having a aerodynamic diameter of greater than about 2 micrometers, said first scrubber having

a venturi scrubber with a gas stream pressure drop of from about 1" H₂O to about 10" H₂O, and

a droplet generator to inject spray droplets into the gas stream, where said droplets are comprise water with a mean mass diameter of from about 200 micrometers to about 750 micrometers, and

a droplet separator to accept the gas stream and said water droplets from said venturi scrubber and remove said droplets from the gas stream; and

a second scrubber to remove a substantial proportion of the particles not scrubbed from the gas stream from said first scrubber.

Claim 24 (new): The air pollution control system of claim 23 wherein said droplet generator comprises a nozzle.

Claim 25 (new): The air pollution control system of claim 23 wherein said spray droplets have a mean mass diameter in the range of about 200 micrometers to about 700 micrometers.

Claim 26 (new): The air pollution control system of claim 23 wherein said spray droplets have a mean mass diameter less than about 500 micrometers.

Claim 27 (new): The method of claim 1 wherein said spray droplets have a mean mass diameter less than about 500 micrometers.

Claim 28 (new): The method of claim 16 wherein said spray droplets have a mean mass diameter less than about 500 micrometers.

Claim 29 (new): The method of claim 1 wherein said the throat velocity in said low energy venturi scrubber is in the range of 50 – 200 fps.

Claim 30 (new): The method of claim 16 wherein said the throat velocity in said low energy venturi scrubber is in the range of 50 – 200 fps.

Claim 31 (new): The method of claim 1 wherein said pressure drop in said low energy venturi is less than about 5" water.

Claim 32 (new): The method of claim 16 wherein said pressure drop in said low energy venturi is less than about 5" water.

Claim 32 (new): The air pollution control system of claim 23 wherein said pressure drop in said low energy venturi is less than about 5" water.